Chemistry

Chemistry majors and minors must earn a minimum grade of C- in all chemistry courses.

LOWER DIVISION

CHEM 100. From Stars to Rocks: Being a Scientist in the 21st Century [3]. Introduction to the impact of astronomy, chemistry, physics, and geology on student life and society, practical aspects of the study of the disciplines and associated careers from different perspectives. [E-LD]


CHEM 109. General Chemistry I [5]. Fundamen- tal concepts: chemical foundations, stoichiometry, chemical reactions, gases, thermochemistry, atomic theory, bonding, liquids, solutions. For students in science, engineering, and related majors. [Letter grade only. Prereq: math placement category I or II or category III and MATH 101i (C). Weekly: 3 hrs lect, 3 hrs lab, 1 hr disc. B-LD]

CHEM 110. General Chemistry II [5]. Fundamen- tal concepts: kinetics; equilibrium; acids and bases; acid-base, solubility, and complex ion equilibria; entropy and free energy; electrochemistry; qualita- tive analysis. For students in science, engineering, and related majors. [Letter grade only. Prereq: CHEM 109 with a grade of C- or higher. Weekly: 3 hrs lect, 6 hrs lab.]


CHEM 198. Supplemental Instruction [1]. Col- laborative work for students enrolled in chemistry. [CR/NC. Rep.]

CHEM 228. Brief Organic Chemistry [4]. For majors in biological science/natural resource areas. Nomenclature, physical properties, syn- thesis, and reactions of compounds represent- ing major functional group categories. Reaction mechanisms emphasized. [Letter grade only. Prereq: CHEM 107 with a grade of C- or higher or CHEM 110 with a grade of C- or higher. Weekly: 3 hrs lect, 3 hrs lab.]

CHEM 308. Alchemy [3]. Inquiry into materials, methods, and processes of alchemist from per- spectives of alchemist, contemporary chemistry. [B-UJ]

CHEM 310. Inorganic Chemistry I [3]. Advanced concepts: nuclear properties, molecular symme- try, bonding, metallic and ionic solids, acids and bases, oxidation-reduction, non-aqueous media, chemistry and organometallic compounds of the representative elements. [Letter grade only. Prereq: CHEM 110 with a grade of C- or higher]

CHEM 323. Nuclear Magnetic Resonance Spectroscopy (NMR) Techniques [1]. Operate NMR spectrometers; prepare samples; individual projects. [Prereq: CHEM 324; CHEM 324L Coreq: CHEM 325; CHEM 325L CR/NC.]

CHEM 324. Organic Chemistry I [3]. First se- mester of a one-year sequence. Chemical bonding, chemical structure, spectroscopy, physical prop- erties, stereochemistry, reaction mechanisms, and synthesis. [Prereq: CHEM 110 with a grade of C- or higher. Coreq: CHEM 324L.]

CHEM 324L. Organic Chemistry I Laboratory [2]. First semester of a year-long sequence. Laboratory techniques, library skills, and synthesis. [Prereq: CHEM 110 with a grade of C- or higher. Coreq: CHEM 324. Weekly: 5 hrs lab.]

CHEM 325. Organic Chemistry II [3]. Second se- mester of a one-year sequence. Chemical bonding, chemical structure, spectroscopy, physical prop- erties, stereochemistry, reaction mechanisms, and synthesis. [Prereq: CHEM 324 AND 324L with C- or higher. Coreq: CHEM 325L]

CHEM 325L. Organic Chemistry II Laboratory [2]. Second semester of a year-long sequence. Laboratory techniques, spectroscopy, library skills, unknown analysis, and synthesis. [Prereq: CHEM 324, CHEM 324L both with C- or higher. Coreq: CHEM 325. Weekly: 6 hrs lab.]

CHEM 330. Molecular Modeling [3]. Apply molecular modeling and computational chemistry methods (semiempirical, ab initio, and density functional) to problems in organic and inorganic chemistry, biochemistry, and molecular biology. [Prereq: CHEM 228 or CHEM 325 [C]: CHEM 325L [C]. Weekly: 2 hrs lect, 3 hrs lab.]

CHEM 341. Quantitative Analysis [5]. Principles and methods of classical chemical analysis. Intro- duction to instrumental methods. For chemistry majors and others who require a rigorous treat- ment of solution equilibria and training in precise quantitative lab techniques. [Prereq: CHEM 110 with a grade of C- or higher. Weekly: 3 hrs lect, 6 hrs lab.]

CHEM 361. Physical Chemistry I [3]. Application of quantitative mathematical methods to fundamental chemical systems: equilibria thermodynamics and chemical kinetics. [Prereq: CHEM 341[C]; PHYX 107 or PHYX 211[C]; MATH 210 or MATH 215; all with grades of C- or higher. Weekly: 2 hrs lect, 2 hrs activ.]

CHEM 362. Physical Chemistry II [3]. Application of quantitative mathematical methods to fundamental chemical systems: quantum theory, spectroscopy, and statistical thermodynamics. [Prereq: CHEM 324; CHEM 324L; CHEM 361 all with a grade of C- or higher. Weekly: 2 hrs lect, 2 hrs activ.]

CHEM 363. Physical Chemistry II Lab [2]. Ex- perimental application of quantitative mathemati- cal methods to fundamental chemical systems: laboratory investigations in equilibrium thermo- dynamics, chemical kinetics, quantum theory, spectroscopy, and statistical thermodynamics. [Prereq: CHEM 341 with a grade of C- or higher and CHEM 362 [C]. Weekly: 6 hrs lab.]

CHEM 370. Earth System Chemistry [3]. Chemistry of the earth, including elemental cycling and speciation in the environment, the impact of man on biogeochemical processes, and the ef- fects of climate change on the chemical/physical interactions occurring within and between the atmosphere, hydrosphere, and biosphere. [Prereq: CHEM 107 or CHEM 110 with a grade of C- or higher.]

CHEM 399. Supplemental Work in Chemistry [1-3]. Directed study for transfer student whose prior coursework is not equivalent to correspond- ing courses at HSU. [Prereq: DA. Rep.]

CHEM 410. Inorganic Chemistry II [3]. Advanced concepts: chemistry and organometallic compo- nents of the transition metals, the lanthanoids, and the actinoids; reaction mechanisms; catalysis; solid state chemistry. [Prereq: CHEM 310. Of- fered alternate years.]

CHEM 410L. Inorganic Chemistry II Lab [2]. Advanced laboratory and instrumentation tech- niques: synthesis, characterization, and reactions of inorganic and organometallic compounds. [Prereq: CHEM 310 with a grade of C- or higher and CHEM 410 [C]. Weekly: 6 hrs lab. Offered alternate years.]

CHEM 434. Biochemistry I [3]. First semester lecture of a one-year sequence. Biochemical energetics, introductory metabolism, nature and mechanism of action of enzymes. [Prereq: CHEM 110; any calculus course; CHEM 325 or CHEM 325L all with a C- or higher.]

CHEM 434L. Biochemistry I Laboratory [2]. First semester of a one-year lab sequence. Laboratory techniques. Must be taken concurrently with CHEM 434. [Prereq: CHEM 325 or [CHEM 325 and CHEM 325L), Coreq: CHEM 434. Weekly 6 hrs lab.]


CHEM 438. Introductory Biochemistry [4]. Brief course in biochemistry. The chemistry of amino acids, proteins, nucleic acids, lipids and carbohydrates. Includes enzyme kinetics, bioenergetics, structure and function of biological membranes, discussion of common laboratory methods. [Prereq: CHEM 228 or (CHEM 325 and CHEM 325L) with a grade of C- or higher. 3 hrs lect, 1 hr disc.]

CHEM 480. Selected Topics in Advanced Chemistry (1-4). [Prereq: IA. Rep.]

CHEM 485. Seminar in Chemistry (1). Seminar presentations on current chemistry topics by majors with senior standing in chemistry. Capstone course. All chemistry majors are encouraged to attend. [Prereq: senior standing. Rep.]


GRADUATE

CHEM 599. Independent Study (1-3). [Prereq: IA. Rep.]